

Background and aims: The purpose of this work was to describe PON1 activity in a group of Brazilian subjects, analyze its phenotype distribution, to compare PON1 activities between groups of subjects with different lipid profiles, search for associations between these profiles and paraoxonase activity; and to investigate whether diet and lifestyle might affect this activity.

Methods: Subjects groups included a total of 94 volunteers, age range of 18-60. Variables studied included basal and salt stimulated PON1 activity and arylesterase activity according to Eckerson's method. Serum cholesterol, HDL, LDL, VLDL and triglycerides were also analyzed. Other variables such as energy consumption and nutrients intakes were assessed from a validated food consumption frequency questionnaire. Lifestyle variables were also assessed. Correlation analysis, T test and ANOVA were used for statistical analysis.

Results: Results indicated that three variables were important to show differences between normal and dislipidemic groups: PON1 salt stimulated activity, % of stimulation of PON1 activity and PON1/arilesterase ratio. Our results also show that whenever we compared B phenotype with other phenotype group (even in combination A + AB) it was demonstrated significant or closely significant differences between groups in relation to HDL and LDL levels. Increased LDL levels in B phenotype group and a reversed relationship concerning HDL levels were observed.

Conclusions: PON1 activity may be an important biomarker to assess risk of diseases associated with individual lipid status and diet may also affect PON1 activity. Our results also point out the need of more studies concerning paraoxonase polymorphism since little is known about environmental interactions with PON1 gene polymorphism in the multiethnic Brazilian population.